

Supplemental Movie Legends

Movie 1. Micro-CT scans along the longitudinal axis of stems containing from tassel to P10 leaves at 6 weeks old.

Wild type and *blh12-3 blh14-1* are shown in left and right, respectively. A scale bar is 5 mm.

Movie 2. A micro-CT scan along the longitudinal axis in wild-type 10th node from the apex at 6 weeks old.

The left and right panels represent the transverse and longitudinal views, respectively. A green bar shown in right panel represents the scanning plane shown in left. A scale bar is 2 mm.

Movie 3. A micro-CT scan along the longitudinal axis in *blh12-3 blh14-1* 10th node from the apex at 6 weeks old.

The left and right panels represent the transverse and longitudinal views, respectively. A green bar shown in right panel represents the scanning plane shown in left. A scale bar is 2 mm.

Movie 4. Horizontal sections of the wild-type shoot apex at 4 weeks old.

Sixty three tissue sections were stacked. The thickness is 10 µm. A scale bar represents 200 µm. Provascular bundles are marked with numbers according to leaf plastochron in same colors (e.g. P1 is 1 in blue).

Movie 5. Horizontal sections of the *blh12-3 blh14-1* shoot apex at 4 weeks old.

Sixty eight tissue sections were stacked. The thickness is 10 µm. A scale bar represents 200 µm. Provascular bundles are marked with numbers according to leaf plastochron in same colors (e.g. P1 is 1 in blue).

Movie 6. PIN1a immunolocalizations in the wild-type shoot apex at 4 weeks old.

Fifty tissue sections immunostained with anti-PIN1a antibody were stacked. The thickness is 10 µm. A scale bar represents 200 µm. Provascular bundles are marked with numbers according to leaf plastochron in same colors (e.g. P1 is 1 in blue).

Movie 7. PIN1a immunolocalizations in the *blh12-3 blh14-1* shoot apex at 4 weeks old.

Fifty six tissue sections immunostained with anti-PIN1a antibody were stacked.

The thickness is 10 μm . A scale bar represents 200 μm . Provascular bundles are marked with numbers according to leaf plastochron in same colors (e.g. P1 is 1 in blue).